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MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196			HO, CHUONG T	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/014,676

Applicant(s)

BONTA, JEFFREY D.

Examiner

CHUONG T. HO

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. The amendment filed 04/03/06 have been entered and made of record..
2. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.
3. Claims 1-21 are pending.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olkkonen et al. (U.S. Patent No. 6,842,460 B1) in view Bahl et al. (U.S. Patent No. 2003/0054818 B1) in view of Gwon et al. (U.S. Patent No. 2003/0016655 A1).

Regarding to claim 1, Olkkonen et al. discloses defining a neighborhood cell by transmitting a localized wireless coverage area-identifying signal (see col. 5, col. 23-30, inquiry signals); comprising:

Establishing communication between a source mobile subscriber unit (see col. 5, lines 25-30, a new short-range wireless device) and a destination unit (see col. 5, lines 25-30, a member of and ad hoc network).

However, Olkkonen et al. is silent to disclosing if the establishing of communication between a source mobile subscriber unit and a destination unit is

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achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage.

See figure 2, Bahl et al. discloses a system of communicating in and around a localized wireless coverage area (see figure 2, Ad-hoc network 280); comprising:

- Establishing communication (see figure 2, 225) between a source mobile (see figure subscriber unit (see figure 2, laptop computer 220) and a destination unit (see figure 2, access point 215);
- If the establishing of communication between a source mobile subscriber unit (see figure 2, laptop computer 220) and a destination unit (see figure 2, access point 215) is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage when the source mobile subscriber enter the neighborhood cell (see figure 2, WAN 255, IS mode) (see col. 4, [0030], to communicate with the wireless nodes in the AH mode, the dual-mode node switches over to the AH mode. When communicating with another IS wireless node or the wired portion of the IS network, the dual-mode node switched back to the IS mode) (see page 5, [0041], the switching of the wireless network mode is triggered by poll signal broadcast by an access point of the IS network. In response to the poll signals, the wireless network driver will disable one of the virtual IS and AH mode of operation and enable the other) (see page 1, [0006], when it later wants to function as a node of the infrastructure network, it

then has to exit the ad hoc network and reconnect to the infrastructure network);

- If the establishing of communication between a source mobile subscriber unit (see figure 2, laptop computer 220) and a destination unit (see figure 2, the access point 215) is achieved through the ad hoc wireless network (see figure 2, the ad-hoc network 280) coverage when the source mobile subscriber unit is within the neighborhood cell (see figure 2, the ad-hoc network 280), switching over to the wide area network coverage when the source mobile subscriber mobile unit exists the neighborhood cell (see page 4, [0030], to communicate with another IS wireless node or the wired portion of the IS network, the dual mode node switched back to the IS mode) (see page 1, [0006], when it later wants to function as a node of the infrastructure network, it then has to exit the ad hoc network and reconnect to the infrastructure network).

Both Olkkonen and Bahl disclose ad-hoc network. Bahl recognizes if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage when the source mobile subscriber unit enters the neighborhood cell; and if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through the ad hoc wireless network coverage when the source mobile subscriber unit is within the neighborhood cell,

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switching over to the wide area wireless network coverage when the source mobile subscriber unit exits the neighborhood cell. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Olkkonen with the teaching of Bahl to provide if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage when the source mobile subscriber unit enters the neighborhood cell; and if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through the ad hoc wireless network coverage when the source mobile subscriber unit is within the neighborhood cell, switching over to the wide area wireless network coverage when the source mobile subscriber unit exits the neighborhood cell in order to access both ad hoc network and wireless network (IS).

However, the combined system (Olkkonen – Bahl) is silent to disclosing when the source mobile subscriber unit enters the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit..

Gwon et al., see figure 1, discloses the invention provides a way to reduce packet latency, packet loss and packet jitter that result when communications between a mobile node and one or more other fixed or mobile correspondent nodes id dynamically handed-off from one neighboring node to another due to a change in location of the

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mobile node within the network (see page 3, [0026], page 5, [0049], [0050], page 6, [0053], page 9, [0084]); comprising:

- when the source mobile subscriber unit enters the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit (see page 5, [0049], [0050], As mobile node (MN) 135 reaches intermediary location B and continues toward location C, in order to maintain communication with the network it must identify a new local router and establish a new network link to replace the link with local router R1) (see page 6, [0050], packets transmitted to the home IP address of mobile node 135 will be tunneled by the home area router to mobile node 135 at its new care of IP address)

Both Olkkonen, Bahl, and Gwon discloses the ad-hoc wireless network. Gwon recognizes defining a neighborhood cell by transmitting a localized wireless coverage are-identifying signal. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Olkkonen – Bahl) with the teaching of Gwon to provide when the source mobile subscriber unit enters the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit in order to prevent the loss of any packets during hand-off.

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4. In the claim 2, Olkkonen discloses when the source mobile subscriber receives a last hop probing signal indicating that the source mobile subscriber unit has entered the neighborhood cell (see abstract).

However, Olkkonen is silent to disclosing if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to the ad hoc wireless network coverage .

Bahl discloses if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to the ad hoc wireless network coverage (see page 4, [0030], to communicate with another IS wireless node or the wired portion of the IS network, the dual mode node switched back to the IS mode) (see page 1, [0006], when it later wants to function as a node of the infrastructure network, it then has to exit the ad hoc network and reconnect to the infrastructure network).

Both Olkkonen and Bahl disclose ad-hoc network. Bahl recognizes if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage when the source mobile subscriber unit enters the neighborhood cell. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Olkkonen with the teaching of Bahl to



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provide if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage when the source mobile subscriber unit enters the neighborhood cell; and if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through the ad hoc wireless network coverage when the source mobile subscriber unit is within the neighborhood cell, switching over to the wide area wireless network coverage when the source mobile subscriber unit exits the neighborhood cell in order to access both ad hoc network and wireless network (IS).

- Gwon discloses when the source mobile subscriber unit enters the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit (see page 5, [0049], [0050], As mobile node (MN) 135 reaches intermediary location B and continues toward location C, in order to maintain communication with the network it must identify a new local router and establish a new network link to replace the link with local router R1) (see page 6, [0050], packets transmitted to the home IP address of mobile node 135 will be tunneled by the home area router to mobile node 135 at its new care of IP address)

Both Olkkonen, Bahl, and Gwon discloses the ad-hoc wireless network. Gwon recognizes defining a neighborhood cell by transmitting a localized wireless coverage are-identifying signal. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Olkkonen – Bahl) with the teaching of Gwon to provide when the source mobile subscriber unit enters the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit in order to maintain communication within the network. Therefore, the combined system would have been enable to prevent the loss of any packets during hand-off.

5. In the claim 6, Olkkonen discloses at all subscriber units within the neighborhood cell, including the source mobile subscriber unit and the one or more last hop nodes, periodically probing (see col. 5, lines 35-40, the beacon signal is transmitted periodically) a first set of mobile subscriber units in proximity thereto to collect ad hoc wireless network coverage information.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

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Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-5, 7, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Olkkonen –Bahl – Gwon) in view of Razavillar et al. (U.S. Patent No. 7,009,952 B1).

In the claim 3, the combined system (Olkkonen, Bahl, Gwon) discloses the limitations of claim 1 above.

However, the combined system (Olkkonen, Bahl, Gwon) is silent to disclosing providing one or more last hop nodes within the neighborhood cell each comprises of a mobile subscriber unit within the neighborhood cell to regulate packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit.

Razavillar et al. discloses providing one or more last hop nodes (see figure 1, access point) within the neighborhood cell each comprising of a mobile subscriber unit within the neighborhood cell to regulate packet traffic (see col. 3, lines 1-5) between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit.

Both Olkkonen, Bahl, Gwon, and Razavillar disclose the wireless network. Razavillar recognizes providing one or more last hop nodes within the neighborhood cell each comprises of a mobile subscriber unit within the neighborhood cell to regulate packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit. Thus, it would have been obvious to one of ordinary skill in the art at the time of the

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invention to modify the combined system (Olkkonen – Bahl – Gwon) with the teaching of Razavillar to provide one or more last hop nodes within the neighborhood cell each comprises of a mobile subscriber unit within the neighborhood cell to regulate packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit in order to maintain an establishing session.

8. In the claim 4, the combined system (Olkkonen – Bahl – Gwon) disclose the limitations of claim 3 above.

However, the combined system (Olkkonen – Bahl – Gwon) is silent to disclosing providing one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more stationary last hop node at fix locations within the neighborhood cell each comprised of a mobile subscriber unit.

Razavillar discloses providing one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more stationary last hop node at fix locations within the neighborhood cell each comprised of a mobile subscriber unit (see col. 3, lines 1-5).

Both Olkkonen, Bahl, Gwon, and Razavillar disclose the wireless network.

Razavillar recognizes providing one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more stationary last hop node at fix locations within the neighborhood cell each comprised of a mobile subscriber unit. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Olkkonen – Bahl – Gwon) with the teaching of Razavillar to provide one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more stationary last hop node at fix locations within the neighborhood cell each comprised of a mobile subscriber unit in order to maintain an establishing session.

9. In the claim 5, the combined system (Olkkonen, Bahl, Gwon) discloses the limitations of claim 3 above.

However, the combined system (Olkkonen, Bahl, Gwon) is silent to disclosing the providing of one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more

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mobile last hop nodes each comprised of a mobile subscriber unit that dynamically defines the neighborhood cell.

Razavillar discloses the providing of one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more mobile last hop nodes each comprised of a mobile subscriber unit that dynamically defines the neighborhood cell (see figure 1, col. 5, lines 1-15).

Both Olkkonen, Bahl, Gwon, and Razavillar disclose the wireless network. Razavillar recognizes the providing of one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more mobile last hop nodes each comprised of a mobile subscriber unit that dynamically defines the neighborhood cell. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Olkkonen – Bahl – Gwon) with the teaching of Razavillar to provide one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more

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mobile last hop nodes each comprised of a mobile subscriber unit that dynamically defines the neighborhood cell in order to maintain an establishing session.

10. In the claim 7, the combined system (Olkkonen – Bahl – Gwon) discloses wherein the periodically probing of a first set of neighborhood mobile subscriber units in proximity thereto collect ad hoc wireless network coverage information comprises periodically probing a first set of neighboring mobile subscriber units to collect ad hoc wireless network coverage route (see Olkkonen, col. 5, lines 35-50).

However, the combined system (Olkkonen – Bahl – Gwon) is silent to disclosing probing to collect cost information; and utilizing the ad hoc wireless network coverage route and cost information to create at least cost data packet route from the source mobile subscriber unit to the destination unit.

Razavillar discloses probing to collect cost information; and utilizing the ad hoc wireless network coverage route and cost information to create at least cost data packet route from the source mobile subscriber unit to the destination unit. (see col. 5, lines 1-15).

Both Olkkonen, Bahl, Gwon, and Razavillar disclose the wireless network. Razavillar recognizes probing to collect cost information; and utilizing the ad hoc wireless network coverage route and cost information to create at least cost data packet route from the source mobile subscriber unit to the destination unit. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Olkkonen – Bahl – Gwon) with the teaching of Razavillar to provide one or more last hop nodes within the neighborhood cell each comprised of a mobile

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subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more mobile last hop nodes each comprised of a mobile subscriber unit that dynamically defines the neighborhood cell in order to maintain an establishing session.

11. In the claim 8, Olkkonen et al. discloses providing one or more last hop nodes within the neighborhood cell to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more last hop node (see figure 1, wireless device provider 106, 118) within the neighborhood cell to multiplex (see col. 3, line 16) mobile subscriber unit data packets onto a single channel for transmission to a wide area network.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 9-10, 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Razavillar (U.S. Patent No. 7,009,952 B1) in view Bahl et al. (U.S. Patent No. 2003/0054818 B1) in view of Gwon et al. (U.S. Patent No. 2003/0016655 A1).



In the claim 9, Razavillar discloses determining whether a predetermined number of network frame errors have been received subsequent to the establishing of a wide area communication route to a destination (see col. 5, lines 1-15).

However Razavillar is silent to disclosing the establishing of a wide area communication route to a destination unit through a wide area network coverage mode of operation.

Bahl discloses establishing a data packet to a destination unit through wide area network coverage (see figure 2, Internet WAN 255); the establishing of a wide area communication route to a destination unit through a wide area network coverage mode of operation (see page 1, [0007]); switching over to ad hoc wireless network coverage upon determining that the data packet route is being disrupted and upon entry into a defined neighborhood cell (see page 1, [0006], when it later want to function as a node of the infrastructure network, it then has to exist the ad hoc network and reconnected to the infrastructure network).

Both Razavillar and Bahl disclose the wireless network. Bahl recognizes the establishing of a wide area communication route to a destination unit through a wide area network coverage mode of operation. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Razavillar with the teaching of Bahl to provide the establishing of a wide area communication route to a destination unit through a wide area network coverage mode of operation in order to access both ad hoc network and wireless network (IS).

However, the combined system (Razavillar – Bahl) is silent to disclosing switching over to ad hoc wireless network coverage to maintain the communication between the

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source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit..

Gwon et al., see figure 1, discloses the invention provides a way to reduce packet latency, packet loss and packet jitter that result when communications between a mobile node and one or more other fixed or mobile correspondent nodes is dynamically handed-off from one neighboring node to another due to a change in location of the mobile node within the network (see page 3, [0026], page 5, [0049], [0050], page 6, [0053], page 9, [0084]); comprising:

- switching over to ad hoc wireless network coverage to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit (see page 5, [0049], [0050], As mobile node (MN) 135 reaches intermediary location B and continues toward location C, in order to maintain communication with the network it must identify a new local router and establish a new network link to replace the link with local router R1) (see page 6, [0050], packets transmitted to the home IP address of mobile node 135 will be tunneled by the home area router to mobile node 135 at its new care of IP address) .

Both Razavillar, Bahl, and Gwon discloses the ad-hoc wireless network. Gwon recognizes switching over to ad hoc wireless network coverage to maintain the

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communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Razavillar – Bahl) with the teaching of Gwon to provide switching over to ad hoc wireless network coverage to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit in order to maintain communication within the network. Therefore, the combined system would have been enable to prevent the loss of any packets during hand-off.

13. In the claim 10, Razavillar discloses the limitations of claim 9 above.

However, Razavillar is silent to disclosing comprising re-establishing the data packet route to the destination unit through the wide area network coverage within the defined neighborhood cell upon leaving a coverage hole within the neighborhood cell.

Bahl discloses re-establishing the data packet route to the destination unit through the wide area network coverage within the defined neighborhood cell upon leaving a coverage hole within the neighborhood cell (see page 1, [0006], when it later wants to function as a node of the infrastructure network, it then has to exit the ad hoc network and reconnect to the infrastructure network).

Both Razavillar, and Bahl disclose the wireless network. Bahl recognizes re-establishing the data packet route to the destination unit through the wide area network coverage

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within the defined neighborhood cell upon leaving a coverage hole within the neighborhood cell. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Razavillar with the teaching of Bahl to re-establishing the data packet route to the destination unit through the wide area network coverage within the defined neighborhood cell upon leaving a coverage hole within the neighborhood cell in order to prevent the loss of any packets during hand-off.

14. In the claim 11, Razavillar discloses during the ad hoc wireless network coverage, communicating with one or more stationary last hop nodes (see figure 1, the access point) within the neighborhood cell to enable data packets transmitted on the data packet route to be multiplexed with other subscriber unit data packets onto a single channel for transmission to a wide area network (see col. 3, lines 1-5).

15. In the claim 12, Bahl discloses the switching over to ad hoc wireless network coverage upon entering into one of a neighborhood cell coverage hole and a neighborhood cell interference region (see page 1, [0007], page 3, [0026], page 4, [0028] [0029]).

However, Bahl is silent to disclosing to maintaining the data packet route to the destination unit upon entering into one of a neighborhood cell coverage hole and a neighborhood cell interference region.

Gwon discloses to maintaining the data packet route to the destination unit upon entering into one of a neighborhood cell coverage hole and a neighborhood cell interference region (see page 5, [0049], [0050], As mobile node (MN) 135 reaches intermediary location B and continues toward location C, in order to maintain

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communication with the network it must identify a new local router and establish a new network link to replace the link with local router R1) (see page 6, [0050], packets transmitted to the home IP address of mobile node 135 will be tunneled by the home area router to mobile node 135 at its new care of IP address)

Both Bahl and Gwon disclose the wireless network. Gwon recognizes maintaining the data packet route to the destination unit upon entering into one of a neighborhood cell coverage hole and a neighborhood cell interference region. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Bahl with the teaching of Gwon to maintain the data packet route to the destination unit upon entering into one of a neighborhood cell coverage hole and a neighborhood cell interference region in order to control packet latency.

### ***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Razavillar – Bahl – Gwon) in view of Olkkonen et al. (U.S. Patent No. 6,842,460 B1).

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In the claim 13, the combined system (Razavillar – Bahl – Gwon) disclose the limitations of claim 9 above.

However, the combined system (Razavillar – Bahl – Gwon) is silent to disclosing periodically probing a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information while within the neighborhood cell.

Olkkonen et al. discloses periodically probing a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information (see col. 5, lines 35-50, beacon signal) while within the neighborhood cell (see col. 5, lines 35-50).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Razavillar – Bahl – Gwon) with teaching of Olkkonen to provide periodically probing a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information while within the neighborhood cell in order to improve short-range handoff.

18. In the claim 14, the combined system (Razavillar – Bahl – Gwon) discloses the probing of a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information to collect ad hoc wireless network coverage route and cost information, wherein the establishing of the data packet route to the destination unit through wide area network coverage within the defined neighborhood cell is executed utilizing the ad hoc wireless network coverage route and cost information (see Razavillar, U.S. 7,009,952 B1, col. 5, lines 1-15).

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However, the combined system (Razavillar – Bahl – Gwon) is silent to disclosing the periodically probing of a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information

Olkkonen et al. discloses the periodically probing of a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information (see col. 5, lines 35-50).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Razavillar – Bahl – Gwon) with the teaching of Olkkonent to provide the periodically probing of a plurality of neighborhood mobile subscriber unit in order to improve the short-range switching over.

19. In the claim 15, Razavillar et al. discloses the switching over to ad hoc wireless network coverage to maintain the data packet route to the destination unit when a predetermined number of network frame errors (see col. 5, lines 1-15, a frame loss rate) have been detected further comprises communicating, through at least one ad hoc mobile subscriber connection, with the last hop (see figure 1, access point) mobile subscriber unit that is connected to a wide area network for transmission of data packets to the wide area network and that dynamically defines the neighborhood cell (see figure 1, col.5, lines 1-15).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

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subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olkkonen et al. (U.S. Patent No. 6,842,460 B1) in view of Bahl (U.S. Patent No. 2003/0054818).

In the claim 16, Olkkonen discloses a last hop node (see figure 1, wireless device (information provider) 106, 118) for defining a neighborhood cell (see col. 13, lines 45-51); the last hop node (see figure 1, wireless device (information provider) 106, 118) further for causing the source mobile subscriber unit (see figure 1, wireless device 100) to communicate with the destination unit (see figure 1, wireless device 108, 118) through the conventional wireless network coverage when the source mobile subscriber unit is outside of the neighborhood cell, and for causing the source mobile subscriber unit to communicate with the destination unit through ad hoc wireless network coverage when the source mobile subscriber unit is within the neighborhood cell (see col. 12, lines 50-67, col. 13, lines 45-50).

However, Olkkonen is silent to disclosing a source mobile subscriber unit including a first source transceiver for communicating through wide area wireless network coverage outside of the neighborhood cell, and a second source transceiver for communicating through ad hoc wireless network coverage within the neighborhood cell.

Bahl discloses a source mobile subscriber unit (see figure 2, laptop computer 220) including a first source transceiver (see figure 2, 220, IS mode) for communicating



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through wide area wireless network coverage outside of the neighborhood cell (see figure 2, 280, ad hoc wireless network), and a second source transceiver (see figure 2, 220, AH "ad hoc" mode) for communicating through ad hoc wireless network coverage within the neighborhood cell (see page 4, [0028] [0029] [0030]);

A destination unit including a first destination transceiver (see figure 2, 215, IS mode) for communicating through the conventional wireless network coverage outside of the neighborhood cell, and a second destination transceiver (see figure 2, 215, AH mode) for communicating through the ad hoc wireless network coverage within the neighborhood cell (see page 6, [0052]).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Olkkonen with the teaching of Bahl to provide a source mobile subscriber unit including a first source transceiver for communicating through wide area wireless network coverage outside of the neighborhood cell, and a second source transceiver for communicating through ad hoc wireless network coverage within the neighborhood cell in order to communicate both wide area network and ad hoc network.

21. In the claim 17, Olkkonen discloses the last hop node (see figure 1, wireless device 106) information provider 106, 108) is a subscriber unit located at a fixed position within the neighborhood cell (see col. 12, lines 50-67, col. 13, lines 45-50).

22. In the claim 18, Olkkonen discloses the last hop node (see figure 1, wireless device 106 (information provider)) is a mobile subscriber unit within the neighborhood cell that dynamically defines the neighborhood cell (see col. 5, lines 45-50).

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23. In the claim 19, Olkkonen discloses a plurality of subscriber units (see figure 1, wireless device 106, 104) located within the neighborhood cell for providing the ad hoc wireless network coverage between the source mobile subscriber (see figure 1, wireless device 100) unit and the destination unit (see figure 1, wireless device 108) within the neighborhood cell (see figure 1, baseball ad hoc network 102) (see col. 5, lines 45-50).

24. In the claim 20, Olkkonen discloses the last hop node (see figure 1, wireless device 106) is further for periodically probing the plurality of mobile subscriber units to collect ad hoc wireless network coverage information from each of the plurality of mobile subscriber units for use in establishing the ad hoc wireless network coverage (see figure 1, baseball ad hoc network 102) (see col. 5, lines 45-50).

***Claim Rejections - 35 USC § 103***

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Olkkonen – Bahl) in view of Razavilar et al. (U.S. Patent No. 7,009,952 B1).

In the claim 21, the combined system (Olkkonen – Bahl) discloses the limitations of claim 16 above.

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However, the combined system (Olkkonen – Bahl) is silent to disclosing the last hop node is further for regulating data packet traffic between the source mobile subscriber unit and the destination unit during the ad hoc wireless network coverage.

Razavilar et al. discloses the last hop node (see figure 1, the access point) is further for regulating data packet traffic between the source mobile subscriber unit and the destination unit during the ad hoc wireless network coverage (see figure 1, col. 3, lines 1-15).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Olkkonen – Bahl) with the teaching of Razavilar to provide the last hop node is further for regulating data packet traffic between the source mobile subscriber unit and the destination unit during the ad hoc wireless network coverage in order to handoff (or switching over) from one access point to another access point, maintaining an established network session.

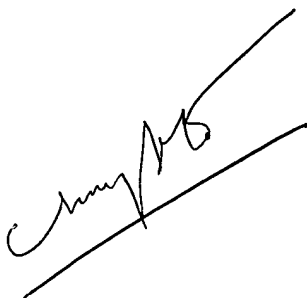
Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUONG T. HO whose telephone number is (571) 272-3133. The examiner can normally be reached on 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

06/07/06

A handwritten signature in black ink, appearing to be "Chung" followed by a stylized flourish, is written over a horizontal line.